

Acton Board of Health

May 16, 2011

Members Present: Mark Conoby, Chairman, William Taylor, William McInnis, Joanne Bissetta and Michael Kreuze.

Staff Present: Doug Halley, Health Director and Isabel Roberts

Others Present:

The meeting was called to order at 7:32 p.m.

**DISCUSSION OF THE PROPOSED INSTITUTIONAL CONTROL PLAN FOR THE
W.R.GRACE SUPERFUND SITE**

The Board discussed the Institutional Controls Plan, W. R. Grace Superfund Site, Acton, Massachusetts, dated May 12, 2011. The following questions were prepared by the Board to hopefully be answered by representatives of W.R.G race, Tetra Tech, EPA and DEP at a public meeting on July 18, 2011 at 7:30pm, Acton Memorial Library. The Board also requests Grace's/Tetra Tech's written responses a week in advance of the meeting.

1. What legal authority gives Grace the right to require Institutional Controls on property it does not own?
2. What legal authority gives the Acton Board of Health the right to deny a private well permit application simply by virtue of the fact that the property is in the Institutional Controls Area?
3. What legal authority gives EPA and/or DEP the right to require the Acton Board of Health to be the institutional Controls watchdog rather than having state or federal implementation of the Institutional Controls for a plume or plumes that affect more than one town and therefore regional impacts?

4. What is the scientific basis for concluding that “well locations within the extent of groundwater contamination and buffer zone shown of figure 3-1” must be automatically rejected if a permit application is made?
5. What alternatives were considered to the proposed form of Institutional Controls? For example, did Grace and Tetra Tech consider the pros and cons of having Grace seek deed restrictions for the affected properties? If not, why not?
6. Has Grace conducted financial feasibility study to determine the viability of placing deed restrictions on all of the affected properties? If not, why not?
7. What is the rationale to have the Institutional Controls Area mimic the original Private Well Survey Area from 2002?
8. Has the current location and shape of the plume or plumes changed? If so, should the Institutional Control Area be redefined in accordance with the current location and shape of the plume(s)? If not, why not?
9. What is the scientific rationale for the buffer zone around the plume(s)? How does this buffer zone ensure that all necessary properties are included and that no unnecessary properties are included?
10. Given the regional nature of the problem, why has Tetra Tech not proposed Institutional Controls to be administered by State or Federal government?
11. Will Grace defend and indemnify the Town against costs and damages associated with any challenge to the legality of the Institutional Controls, any appeal from a permit denial, any damages incurred as a result of a permit denial, and any damages associated with an alleged taking of private property rights occasioned thereby? If not, why not?
12. Does the proposed Institutional Controls Plan extend to surface as well as groundwater? If not, why not?
13. If the proposed Institutional Controls are to remain on effect “until Interim Groundwater Cleanup Goals are attained,” what is the best estimate of when that will happen and what is the scientific basis for that estimate?
14. What steps will Grace and its contractors take to update (reduce) periodically the extent of the IC Area over time as new data becomes available and the extent of the plume changes?

15. What steps will EPA and DEP take over time to change the delineation of the size and shape of the IC Area as new data becomes available and the extent of the plume changes?

HEALTH DEPARTMENT UPDATE

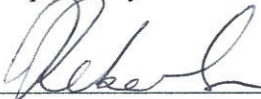
Ms. Cheryl Petterson, Acton MRC chairman, has recently been honored as MRC member of the year.

Acton Nursing Department has been awarded 2011 recipient of "Homecare Elite" award.

Adjournment

On a motion made by Mr. McInnis, seconded by Ms. Bissetta, the Board unanimously voted to adjourn at 8:50 PM.

Respectfully Submitted,



Isabel Roberts, Health Secretary
Acton Board of Health



Mark Conoby, Chairman
Acton Board of Health

Town of Acton Board of Health

Meeting Agenda

May 16, 2011
Acton Memorial Library
7:30 p.m. – 9:00 p.m.

.....

7:30

W.R.Grace -

**Discussion of the proposed institutional control
plan for the Grace site.**

8:00

Health Department Update



TETRA TECH

P.N. 3008054.01.28

May 12, 2011

Mr. Derrick Golden
Waste Management Division
U.S. Environmental Protection Agency
Region I
5 Post Office Square
Mail Code OSRR07-4
Boston, MA 02109-3912

Ms. Jennifer McWeeney
Bureau of Waste Site Cleanup
Massachusetts Department of
Environmental Protection
One Winter Street, 7th Floor
Boston, MA 02108

RE: Institutional Controls Plan, W. R. Grace Superfund Site, Acton, Massachusetts

Dear Mr. Golden and Ms. McWeeney:

On behalf of W.R. Grace & Co.-Conn. (Grace), please find enclosed two copies of the Institutional Controls Plan. As we discussed, the Health Departments in the Towns of Acton and Concord are being copied on this deliverable, so that they can review it, provide feedback and be part of the approval process. Please contact Thor Helgason (781-642-8775) if you have any questions regarding this document

Sincerely,

Anne B. Sheehan
Senior Hydrogeologist

CC: *electronic copies, unless indicated*

Lydia Duff, W. R. Grace
Lynne Gardner, W. R. Grace
Jack Guswa, JG Environmental
Doug Halley, Acton Health Department
Thor Helgason, de maximis (*electronic and hard copy*)
Seth Jaffe, Foley Hoag
Bob Medler, Remedium (*electronic and hard copy*)
Stanley Sosnicki, Concord Health Department

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INSTITUTIONAL CONTROLS PLAN

**W.R. GRACE SUPERFUND SITE
ACTON, MASSACHUSETTS**

PREPARED FOR

W.R. GRACE & CO. – CONN.
62 WHITTEMORE AVENUE
CAMBRIDGE, MASSACHUSETTS 02140

PREPARED BY

TETRA TECH GEO
ONE MONARCH DRIVE
SUITE 101
LITTLETON, MASSACHUSETTS 01460
(978) 952-0120

TETRA TECH GEO PROJECT NO. 117-3008054/01.28

MAY 12, 2011



TETRA TECH GEO

One Monarch Drive, Littleton, Massachusetts 01460

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INSTITUTIONAL CONTROLS PLAN

W.R. GRACE SUPERFUND SITE
ACTON, MASSACHUSETTS

PREPARED FOR:

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Disclaimer: This document is a DRAFT document prepared by W. R. Grace under a government Consent Decree. This document has not undergone formal review by EPA and Massachusetts Department of Environmental Protection. The opinions, findings, and conclusions, expressed are those of the author and not those of USEPA and MassDEP.

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FIGURES

FIGURE 1-1 SITE MAP

FIGURE 2-1 PRIVATE WELL SURVEY AREA

FIGURE 3-1 INSTITUTIONAL CONTROLS AREA

1 INTRODUCTION

This Institutional Controls Plan for the W. R. Grace & Co. – Conn. (Grace) Acton Superfund Site (the “Site”) is submitted in accordance with the Operable Unit Three (OU-3) Remedial Design/Remedial Action (RD/RA) Statement of Work (SOW), as approved by the United States Environmental Protection Agency (USEPA) and the Massachusetts Department of Environmental Protection (MassDEP) on August 30, 2006. Institutional controls (ICs) are being implemented at the Grace Superfund Site to prevent unacceptable exposures to contaminated groundwater until and to minimize unnecessary spreading of groundwater contamination. The ICs will limit the installation of extraction and injection wells within the IC Area for the Site until Interim Groundwater Cleanup Goals are attained. Section 1 of this Report describes the Site background, Section 2 describes the ICs and Section 3 provides references cited in this Report.

1.1 PROPERTY DESCRIPTION

The Grace property, comprising approximately 260 acres, is located in Acton and Concord, Massachusetts. Figure 1-1 is a map showing the Grace property and the surrounding area. The Grace property is bordered by residential property on the northwest, east, and west, and industrial properties to the south and northeast. Sinking Pond, a kettle pond, is located in the southwestern portion of the property. Turtle and Muskrat Ponds, which occupy former gravel pits, are located south of the property. Fort Pond Brook bounds the property to the northwest and the Assabet River bounds the property to the southeast. The Assabet Wellfield, consisting of public water supply wells Assabet 1 and Assabet 2, supplies water for a portion of the Town of Acton and is located southwest of the property. The School Street Wellfield, consisting of public water supply wells Christofferson, Lawsbrook and Scribner, also supplies water for a portion of the Town of Acton and is located northeast of the property.

1.2 PROPERTY HISTORY

Former owners of the Grace property include American Cyanamid Company, which manufactured explosives, and the Dewey & Almy Chemical Company (Dewey & Almy). Dewey & Almy acquired the property in 1946 and manufactured synthetic rubber container sealant products. An organic chemical plant that produced latex products, plasticizers, and resins began

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operating in 1949. A paper battery separator production facility was constructed in 1951 (HSI GeoTrans, 1998).

Grace acquired Dewey & Almy in 1954, and manufacturing operations were continued at the property. Grace produced materials used to make concrete additives, organic chemicals, container sealing compounds, latex products, and paper and plastic battery separators. Process wastewater was disposed of in several on-Site lagoons and solid industrial wastes were disposed of in an on-Site landfill. In addition, the by-products of some chemical processes were disposed of in the Blowdown Pit in the central portion of the property. Discharge to these areas ceased in 1980. Production of organic chemicals ceased in 1982.

In 1978, groundwater contamination, consisting mainly of 1,1-dichloroethene (VDC) and lesser amounts of vinyl chloride, ethylbenzene, and benzene, was detected in two Acton municipal supply wells, Assabet 1 and Assabet 2, located southwest of the property.

1.3 REMEDIAL HISTORY

After the groundwater contamination was discovered in 1978, Grace undertook a number of remedial activities. The remedial activities done at the Site are described below.

1.3.1 *Aquifer Restoration System*

The discovery of groundwater contamination in the Assabet wells in 1978 led to the design of the Aquifer Restoration System (ARS) and its initial installation beginning in 1984. The ARS was designed to mitigate the migration of contaminated groundwater to the Assabet wells, the Assabet River, and Fort Pond Brook.

The ARS created a large hydraulic capture zone beneath the Site. Contaminated groundwater within the capture zone was collected and treated by the ARS. The main ARS became operational in March 1985 and was supplemented in 1987 and 1992. Through most of its period of operation, the ARS consisted of eleven extraction wells pumping a total of approximately 570 gallons per minute (gpm) of groundwater. Groundwater was treated by air stripping and discharged to Sinking Pond. In late 2002, three extraction wells, NMGP, RP-1, and WRG-1, were removed from service, thereby reducing the volume of groundwater pumped by the ARS to approximately 400 gpm. Between May 2007 and December 2010, six additional recovery wells, ELF, NLGP, NLBR, SLGP, SLBR and RLF, were removed from service, and

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four new extraction wells, NE-1, SELF-1, SELF-2 and SWLF-1, were installed and activated. As of December 2010, five extraction wells were active downgradient of the Industrial Landfill, MLF, SELF-1, SELF-2, SWLF-1 and WLF, pumping approximately 40 to 50 gpm and one extraction well was active in the Northeast Area, NE-1, pumping approximately 20 gpm. Treated groundwater from extraction well NE-1 is reinjected into the shallow groundwater through reinjection wells RE-1 and/or RE-2.

1.3.2 Operable Unit One Record of Decision and Remedy

A Record of Decision (ROD) for the Site was issued on September 29, 1989. In order to implement the Site cleanup under the ROD, the USEPA organized the work into three operable units (OUs) as follows:

- OU-1: Disposal areas and surficial contamination areas at the Site;
- OU-2: Residual contamination in source areas at the Site following implementation of OU-1; and
- OU-3: Contaminated groundwater in the area of the Acton facility that is not contained or adequately addressed by the ARS.

The OU-1 remedy contained in the ROD (USEPA, 1989) was implemented between 1994 and 1997. The remedy included excavation of contaminated material with a) off-Site incineration of the more contaminated sludge and soil; and b) on-Site solidification of less-contaminated soil and sludge, followed by removal of volatile organic compounds (VOCs) by heat, and by on-Site disposal in the Industrial Landfill. The OU-1 remedy also included capping the Industrial Landfill and grading the excavated waste areas (HSI GeoTrans, 1998). Post-excavation sampling of remediated soil demonstrated that the concentrations of contaminants in the remaining soils were below the established Soil Cleanup Goals. Therefore, both the OU-1 and OU-2 remedy goals were achieved without having to implement a separate OU-2 remedy.

1.3.3 Operable Unit Three Record of Decision

The OU-3 ROD (USEPA, 2005), issued September 30, 2005, addressed groundwater, sediment and surface water contamination at the Site to the extent they existed. The major components of the remedy include:

- Cleanup of contaminated sediments and soils posing an unacceptable risk to human health and/or the environment in Sinking Pond and the North Lagoon Wetlands;

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- Extraction and treatment of groundwater contamination in the Southeast and Southwest Industrial Landfill Areas on the Grace property and at targeted areas within the Northeast Area;
- A redesigned and/or modified Aquifer Restoration System that will treat extracted groundwater for both metals and organic contaminants;
- Monitored natural attenuation of areas of groundwater not captured by the extraction system;
- Institutional controls such as deed restrictions and/or local ordinances to prevent unacceptable exposures to contaminated groundwater until cleanup levels are met and to protect against unacceptable future exposures to any wastes left in place on-Site; and
- Long-term groundwater, surface water, and sediment monitoring and periodic five-year reviews of the remedy.

1.3.4 Operable Unit Three Remedies

The following provides a status of the Northeast Area, Landfill Area and Sediment Remedial Actions.

Northeast Area Remedial Action

The Northeast Area Groundwater Treatment System, which became operational on April 5, 2010, is designed to remove VOCs and arsenic from extracted groundwater and discharge the treated water into reinjection wells. Groundwater is extracted from extraction well NE-1 and reinjected into reinjection wells RE-1 and/or RE-2. The locations of the extraction and reinjection wells are shown on Figure 1-1. The extraction, treatment and re-injection system is designed to operate at a rate of 20 gpm. The ROD-specified objectives of the Northeast Area Groundwater Remedial Action are (USEPA, 2005, p. 69) to:

- protect the municipal water supply by reducing the areal extent of groundwater contamination;
- reduce the mass of contamination in the most concentrated part of the plume;
- minimize impacts to the School Street wellfield and Fort Pond Brook; and
- minimize impacts to residential property owners in the Northeast Area by locating remedial system components on industrial property or public lands where technically and administratively feasible.

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The ROD does not require that a specific capture zone be attained by the Northeast Area extraction system, but focuses instead on groundwater extraction from the geographic area with the highest residual VOC concentrations. The ROD anticipated that groundwater extraction from within the area with the highest residual VOC concentrations would be the most effective area for targeted mass removal. Even though VOC concentrations in the targeted area have decreased since 2001, when the data upon which the ROD was based was obtained, the geographic area within the Northeast Area containing the highest residual VOC concentrations has remained the same. The ROD also anticipated as a long-term goal that extracting groundwater from the highest residual VOC concentration area would result in a reduction in the areal extent of contaminated groundwater. It is unlikely that a reduction in areal extent of contaminated groundwater will be observable during the relatively short time period that this remedy is expected to be active, even though mass reduction is occurring. As indicated in the ROD (USEPA, 2005, pg 69), USEPA has assumed that the Northeast Area Remedial Action would continue for approximately three years. At the end of this three-year timeframe and, if necessary, every two years thereafter, an evaluation will be conducted to determine if the Northeast Area Remedial Action can be discontinued. Additional details regarding the Northeast Area Remedial Action can be found in the Interim Northeast Area Groundwater Remedial Action Report (GeoTrans and O&M, 2011).

Landfill Area Remedial Action

The Remedial Action for the Landfill Area selected in the Record of Decision (ROD) (USEPA, 2005) consists of groundwater extraction wells designed to capture groundwater generally in the area described as the “ROD Capture Zone” on Figure 1-1, combined with Monitored Natural Attenuation (MNA) to remediate groundwater contamination not captured by the extraction system. The “ROD Capture Zone” represents a goal of the groundwater extraction component of the selected remedy. The groundwater extraction system component of the remedial action has been completed. It consists of five extraction wells located south of the Industrial Landfill: two previously existing extraction wells, MLF and WLF, and three new extraction wells, SWLF-1 and SELF-1, installed in 2008, and SELF-2 installed in 2010. Analyses of data collected during start-up of the extraction system in June 2010, after installation of extraction well SELF-2, in which the five extraction wells were pumping at a combined rate

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of approximately 51 gpm, indicate that extraction from MLF, WLF, SELF-1, SELF-2 and SWLF-1 has created a capture zone that satisfies the ROD capture zone requirements (GeoTrans, 2010). In a letter dated October 29, 2010 (USEPA, 2010), the USEPA concurred with the hydraulic evaluation conclusion that the five-well extraction system had attained the ROD-required capture zone.

The groundwater treatment system for the Landfill Area will treat extracted groundwater for both metals and organics. The treatment processes for the extracted groundwater includes metals precipitation and photocatalytic oxidation prior to surface water discharge to Sinking Pond. This groundwater treatment system is expected to be operational in the spring of 2011. Additional information regarding the Landfill Area Remedial Action can be found in the Landfill Area Groundwater Final Design (GeoTrans and O&M, 2010).

Sediment Remedial Action

The ROD specified cleanup of contaminated sediments and soils posing an unacceptable risk to human health and/or the environment in Sinking Pond and the North Lagoon Wetland. The locations of Sinking Pond and the North Lagoon Wetland are shown on Figure 1-1. For Sinking Pond, the ROD specified a human-health-based sediment cleanup level of 42 mg/kg arsenic in areas where human exposure may occur. For areas of ecological concern, the ROD specified a long-term goal of 42 mg/kg arsenic. For the North Lagoon Wetland, the ROD specified cleanup levels of 28 mg/kg arsenic and 2,030 mg/kg manganese in the top one foot of soils. The Remedial Action Objectives (RAOs) for sediments for the protection of human health and the environment, as set forth in the ROD (Page 47), are as follows:

- Control discharge of treated effluent groundwater to prevent unacceptable impacts to sediment and surface water in Sinking Pond.
- Prevent a future resident from exposure to sediment in Sinking Pond and North Lagoon Wetland that poses an excess cancer risk above 10^{-4} to 10^{-6} or a hazard index of 1.0.
- Prevent exposure to contaminants in sediment that presents an unacceptable risk to the environment.

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These RAOs were developed to mitigate, restore, and/or prevent existing and future potential threats to human health and the environment and are based on the current and reasonably anticipated future land use.

The selected sediment remedy is a comprehensive approach that addresses potential future risks associated with impacted sediments in Sinking Pond and the North Lagoon Wetland. Sediment that exceeds the cleanup criteria in the North Lagoon Wetland and applicable portions of Sinking Pond will be addressed through excavation/dredging and off-site disposal to prevent exposure to impacted sediments above specified cleanup levels. Placement of clean cover has been retained as a contingent remedial measure for Sinking Pond in the event that the remedial goals cannot be achieved through excavation/dredging alone. The Sediment Remedial Action is expected to begin in the summer of 2011. Additional information regarding the Sediment Remedial Action can be found in the Final (100%) Sediment Remedial Design Report (Arcadis, 2010).

2 SUMMARY OF PRIVATE WELL RESTRICTIONS

This section summarizes the results of a private well survey done in 2002 as well as the Town of Acton and Town of Concord policies and procedures as they relate to private well installations.

2.1 PRIVATE WELL SURVEY

In 2002, as part of the Remedial Investigation, a private well survey was conducted to obtain current information on the status of private wells, if any, located near the Site. The survey consisted of mailing survey forms requesting information regarding the existence of private wells to 322 Acton/Concord property owners within approximately 500 feet of mapped groundwater contamination. This was referred to as the Private Well Survey Area and is shown on Figure 2-1. In addition, a number of government agencies were contacted regarding information that would identify existing private wells in the vicinity of the Site, including the Massachusetts Department of Environmental Protection (MassDEP), Department of Environmental Management, Office of Water Resources; the Massachusetts Water Resource Authority, the MassDEP Drinking Water Programs Division. Among the wells identified were two private irrigation wells within the area of mapped groundwater contamination in the Town of Acton. These wells are no longer used for irrigation purposes. One well has been decommissioned and one well has been converted to a multi-level monitoring well. The complete results of the survey are detailed in Section 4 of the Phase 1 Remedial Investigation Data Report Addendum (GeoTrans, 2002) and summarized in Section 2.4.2 of the Public Review Draft Remedial Investigation Report (GeoTrans, 2005).

Following the private well survey, Grace had discussions with the Towns of Acton and Concord regarding their policies and procedures as they relate to private well installations.

2.2 TOWN OF ACTON

The Town of Acton allows installation of private wells for irrigation purposes only. Residents must obtain a permit from the Health Department in order to install an irrigation well. Following the private well survey in 2002 and the identification of several private irrigation wells within the area of mapped groundwater contamination, Grace requested that the Acton Board of Health enact a moratorium on new installations of private wells within the private well

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survey area. In June 2002, the Board of Health placed an Administrative Hold on new irrigation wells within the private well survey area. The Administrative Hold remained in effect while the Board of Health conducted a series of public hearings and was extended until April 2005. In a March 2, 2011 telephone conversation, Doug Halley, Director of the Acton Health Department, stated that the Administrative Hold on the installation of wells within the area shown on Figure 2-1 is still in place. Mr. Halley stated that since the Administrative Hold was established in 2002, no one had applied to install a well, but that, if they did, the Board of Health would not approve the application.

2.3 TOWN OF CONCORD

The Town of Concord allows installation of private wells for potable supply and for irrigation. Residents must obtain a permit from the Health Department in order to install a well. In 2002, the Concord Health Director indicated that if someone applied to install a well near the Grace Site, he would provide information regarding the groundwater contamination and urge them not to install the well. At that time, the Concord Health Director stated that he believed that this administrative procedure addressed concerns regarding new well installations and that additional regulation was not necessary.

In an April 12, 2011 telephone conversation, Stanley Susnicki, Acting Health Director of the Concord Health Department, indicated that, in October 2009, the Town of Concord Board of Health adopted "Minimum Sanitation Standards for Private and Semi-Private Water Supplies" (Town of Concord Board of Health, 2009). These new regulations provide guidelines for the installation and monitoring of private and semi-private wells. Among the requirements specified in the regulations are that the property owner or his designated representative must obtain a permit from the Board of Health and the permit must include a listing of any hazardous waste sites regulated by 310 CMR 40.00 within 1,000 feet of the proposed well. In addition, water quality testing requirements, including VOCs for supply wells are specified.

3 INSTITUTIONAL CONTROLS

ICs are being implemented at the Grace Superfund Site to prevent unacceptable exposures to contaminated groundwater and to minimize unnecessary spreading of groundwater contamination. The institutional controls will limit the installation of public or private extraction or injection wells within the IC Area until Interim Groundwater Cleanup Goals are attained. The restrictions would apply to the installation of any type of well, including, but not limited to, public water supply wells, irrigation wells, potable water supply wells, industrial extraction/injection wells, groundwater heat pump wells and non-contact cooling water wells but excluding monitoring, extraction or other wells associated with Site response actions. The following sections describe the ICs that will be implemented.

3.1 OBJECTIVES

The objectives of the institutional controls at the Site are to:

- 1) Prevent unacceptable exposures to contaminated groundwater until cleanup levels are met and
- 2) Minimize unnecessary spreading of groundwater contamination.

3.2 MECHANISM

The ICs will be implemented through the existing permit mechanisms already in place in the Towns of Acton and Concord. As indicated in Section 2, both towns require permits from the Health Department prior to installation of wells. The existing permitting processes in the Towns will be used to restrict the installation and use of wells, as necessary, within the IC Area. Figure 3-1 shows:

- The IC Area and
- The current extent of groundwater contamination with at least a 100-foot buffer zone.

The current extent of contamination includes the area where VDC, vinyl chloride and benzene groundwater concentrations were greater than Interim Groundwater Cleanup Goals from groundwater samples collected between September 8 and October 7, 2010.

3.3 TIMING

As discussed in Section 2, limits on the installation of wells within the IC Area were implemented in 2002. The formal ICs described below will be instituted upon approval of this plan by the USEPA, MassDEP, the Town of Acton and the Town of Concord and will remain in effect until Interim Groundwater Cleanup Goals are attained.

3.4 RESPONSIBILITY

As described below, the Towns of Acton and Concord, the USEPA and Grace will have roles regarding enforcement of the ICs.

3.4.1 TOWNS OF ACTON AND CONCORD

The Towns of Acton and Concord will:

- 1) For well locations within the extent of groundwater contamination and buffer zone shown on Figure 3-1 - reject the permit application and
- 2) For locations outside of the extent of groundwater contamination and buffer zone but within the IC Area shown on Figure 3-1 - forward the permit application to USEPA and Grace as described below for review. Issue or reject permit application based on USEPA recommendation.

3.4.2 USEPA

The USEPA, with assistance from Grace, if requested, will review any public or private well permit applications forwarded to them by the Towns of Acton and Concord. Each application will be evaluated on a case by case basis to determine if the well installation is likely to result in unacceptable exposure to contaminated groundwater or to cause unnecessary spreading, horizontally and/or vertically, of the contaminated groundwater. The following will be considered in each evaluation:

- 1) Proposed location of well relative to groundwater contamination;
- 2) Expected construction of well (depth, lithologic unit);
- 3) Intended use of extracted water (potable water, irrigation water, other); and
- 4) Planned operation of well (extraction rate, length and duration of pumping events).

Based on the evaluation, USEPA will make a determination as to whether unacceptable exposure to contaminated groundwater and/or significant impact to the existing remedy or spatial

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distribution of groundwater would occur as a result of installation and operation of the well. The Town of Acton and/or Concord would then issue or reject the permit application based on the recommendation of USEPA.

3.4.3 GRACE

Grace will continue to monitor groundwater quality and provide the data and plume maps in annual groundwater monitoring reports. Grace will also assist USEPA, if requested, with review of any public or private well permit applications forwarded to them by the Towns of Acton and Concord.

3.5 EVALUATION

During the Five-Year Review process, Grace will assist USEPA in evaluating the administrative/legal components of the ICs to ensure that they are being implemented, are fully effective, and remain necessary to prevent unacceptable exposures. In addition, the extent of groundwater contamination and buffer zone will be updated to refer to the most recent groundwater quality data. The evaluation and updated IC Area map will be documented in the Five-Year Review Reports issued by USEPA.

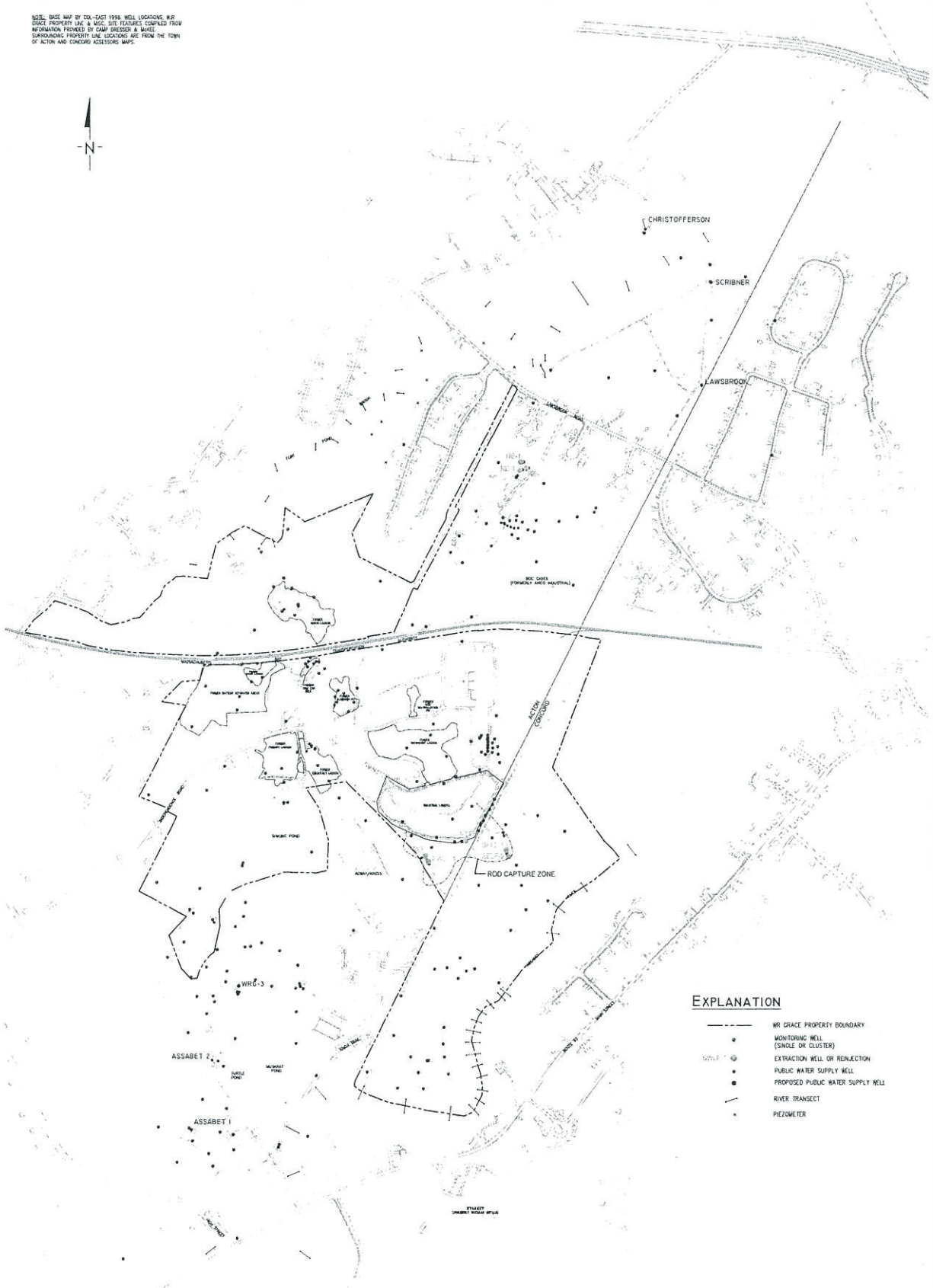
4 REFERENCES

- Arcadis, 2010, Final (100%) Sediment Remedial Design Report. September 2010.
- GeoTrans, 2002, Phase 1 Remedial Investigation Data Report Addendum, August 16, 2002.
- GeoTrans, 2005, Public Review Draft Remedial Investigation Report, July 1, 2005.
- GeoTrans, 2010, Letter to USEPA and MassDEP *RE: Installation of Extraction well SELF-2, Decommissioning of Extraction Wells ELF and RLF, and Re-Evaluation of Landfill Area Groundwater Capture Zone*, August 18, 2010.
- GeoTrans and O&M, Inc., 2010, Landfill Area Groundwater Final Design, December 13, 2010.
- GeoTrans and O&M, Inc., 2011, Interim Northeast Area Groundwater Remedial Action Report (Revision 01), January 20, 2011.
- HSI GeoTrans, 1998, Initial Site Characterization Report, August 12, 1998.
- Town of Concord Board of Health, 2009, "Minimum Sanitation Standards for Private and Semi-Public Water Supplies", http://www.concordnet.org/pages/ConcordMA_health/forms/CBHR7.WELLREGULATIONS.PDF, October 20, 2009.
- USEPA, 1989, Declaration of Record of Decision, September 28, 1989.
- USEPA, 2005. Record of Decision, W. R. Grace & Co. (Acton Plant) Superfund Site, Operable Unit Three, September 2005.
- USEPA, 2010, Letter to de maximis *Re: Conditional Approval of document entitled: Installation of Extraction well SELF-2, Decommissioning of Extraction Wells ELF and RLF, and Re-Evaluation of Landfill Area Groundwater Capture Zone*, October 29, 2010.

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FIGURES

NOTE: BASE MAP BY CO-EAST 1994. WELL LOCATIONS, W.P. SOURCE PROPERTY LINE & ROD CAPTURE ZONE FEATURES COMPILED FROM INFORMATION PROVIDED BY CAMP DRESSER & WHITE. SURROUNDING PROPERTY LINE LOCATIONS ARE FROM THE TOWN OF ACTON AND CONCORD ASSESSORS MAPS.



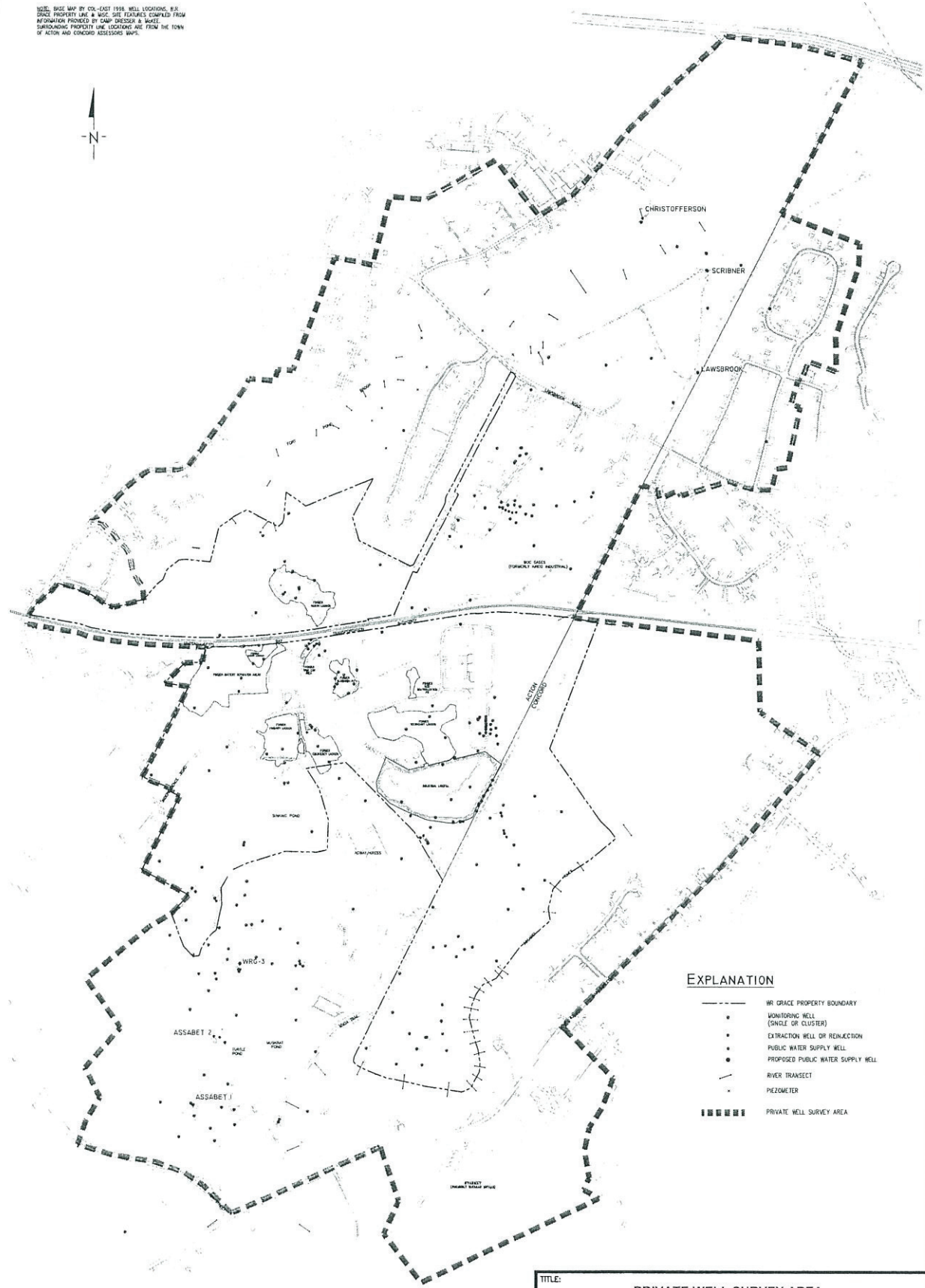
EXPLANATION

- W.R. GRACE PROPERTY BOUNDARY
- MONITORING WELL (SINGLE OR CLUSTER)
- +• EXTRACTION WELL OR REJECTION
- +• PUBLIC WATER SUPPLY WELL
- +• PROPOSED PUBLIC WATER SUPPLY WELL
- +— RIVER TRANSECT
- +• PIEZOMETER

0 500' 1000'
Scale in feet

TITLE:		SITE MAP	
LOCATION:		W.R. Grace, Acton, Massachusetts	
 TETRA TECH GEO	APPROVED	ABS	FIGURE 1-1
	DRAFTED	RMK	
	PROJECT#	117-3008	
	DATE	MAY 2011	


NOTE: BASE MAP BY CO-EXIST 1998. WELL LOCATIONS, B.R. GRACE PROPERTY LINE & B.R. SITE FEATURES COMPILED FROM INFORMATION PROVIDED BY CAMP DRESSER & JACK. SURROUNDING PROPERTY LINE LOCATIONS ARE FROM THE TOWN OF ACTON AND CONCORD ACCESSORY MAPS.



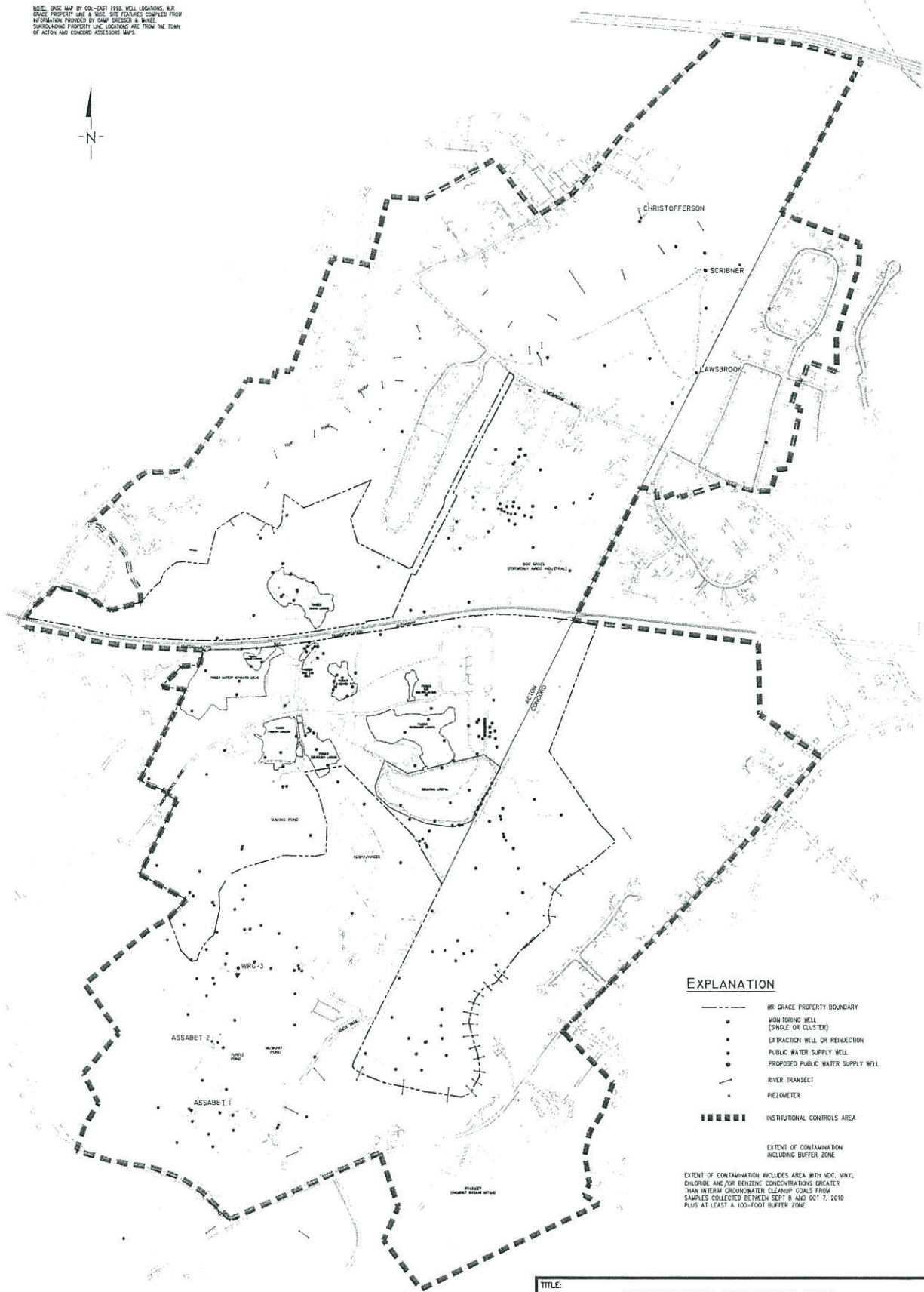
EXPLANATION

- W.R. GRACE PROPERTY BOUNDARY
- MONITORING WELL (SINGLE OR CLUSTER)
- EXTRACTION WELL OR REINJECTION
- PUBLIC WATER SUPPLY WELL
- ◻ PROPOSED PUBLIC WATER SUPPLY WELL
- RIVER TRANSECT
- PIEZOMETER
- PRIVATE WELL SURVEY AREA

0 800'
Scale in feet

TITLE:		PRIVATE WELL SURVEY AREA	
LOCATION:		W.R. Grace, Acton, Massachusetts	
	APPROVED	ABS	FIGURE 2-1
	DRAFTED	RMK	
	PROJECT#	117-300B	
	DATE	MAY 2011	

NOTE: BASE MAP BY COX-DUST 1998. WELL LOCATIONS, W.R. GRACE PROPERTY LINE & VIC. SITE FEATURES COMPILED FROM INFORMATION PROVIDED BY CAMP DRESSER & WATTE. CIRCUMSCRIBING PROPERTY LINE LOCATIONS ARE FROM THE TOWN OF ACTON AND CONCORD ASSESSORS MAPS.



EXPLANATION

- W.R. GRACE PROPERTY BOUNDARY
- MONITORING WELL (SINGLE OR CLUSTER)
- EXTRACTION WELL OR REINJECTION
- PUBLIC WATER SUPPLY WELL
- PROPOSED PUBLIC WATER SUPPLY WELL
- RIVER TRANSECT
- PIEZOMETER

■■■■■ INSTITUTIONAL CONTROLS AREA

EXTENT OF CONTAMINATION INCLUDING BUFFER ZONE

EXTENT OF CONTAMINATION INCLUDES AREA WITH VOC, VINYL CHLORIDE AND/OR BENZENE CONCENTRATIONS GREATER THAN INTERIM GROUNDWATER CLEANUP GOALS FROM SAMPLES COLLECTED BETWEEN SEPT. 8 AND OCT. 7, 2010 PLUS AT LEAST A 100-FOOT BUFFER ZONE.

0 800'
Scale in feet

TITLE: INSTITUTIONAL CONTROLS AREA

LOCATION: W.R. Grace, Acton, Massachusetts



TETRA TECH GEO

APPROVED	ABS
DRAFTED	RMK
PROJECT#	117-3008
DATE	MAY 2011

FIGURE

3-1